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STRATEGY RESEARCH PROJECT

WAR AS A WHOLE: OPERATIONAL SHOCK AND OPERATIONAL ART

BY

COLONEL J. D. KELLY Australian Army

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WAR AS A WHOLE: OPERATIONAL SHOCK AND OPERATIONAL ART

by

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ABSTRACT

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War as a Whole: Operational Shock and Operational Art

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The paper argues that there is no discrete operational level of war. Operational art is merely a function that needs to be performed. Operational art is the application of mechanical tactical means to achieve abstract strategic ends. At the core of this art is the concept of operational shock.

Maneuver theory seeks ways to defeat the will of an enemy without having to destroy all his forces. Operational shock applies this thinking to the operational system of the enemy. A military operational system comprises its mission, its forces and the geographic space it influences. Operational shock aims to deprive this system of the ability to achieve its purpose and therefore enables us to move away from the need to destroy all of the enemy's fielded forces. It is therefore the core of operational art, which arose from the difficulty attendant on defeat of the nation-in-arms. The creation of operational shock is the organizing idea behind operational design and the conceptual link between tactical action and strategic results. The paper discusses some aspects of operational design that may enhance the prospects of inflicting operational shock.

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PREFACE

In 1999 Brigadier General (retired) Shimon Naveh of the IDF published: In Pursuit of Military Excellence: The Evolution of Operational Theory. (Portland, Or. Frank Cass 1997). In the view of this author this book presents a fallacious argument based on a biased interpretation of the available evidence. Nonetheless, it does contain many genuine insights and, as far as I know, contains the most thorough and thought provoking discussion of operational art presently in print. This essay argues within the broad framework proposed by General Naveh but arrives at different conclusions

WAR AS A WHOLE: OPERATIONAL SHOCK AND OPERATIONAL ART

OPERATIONAL ART

The new JP 5-00.1 notes that 'theater-level campaign planning is mostly art', that it is 'inextricably linked with operational art' and is 'primarily an intellectual exercise based on experience and judgment.' Although JP 5-00 goes on to describe the processes that should be followed to facilitate the production of a coherent campaign plan nothing more is said about the "art".

The nature of operational art, its elements and how experience and judgment can be developed to apply it are important questions that remain un-answered in the new doctrine. The purpose of this essay is to discuss some of the ideas surrounding operational art in order—as far as possible — to clarify them.

This essay is premised on the proposition that there is no operational level of war. Operational art is merely a function that needs to be performed. This function is concerned with the conversation between strategy and tactics, or ends and means. The difficulty inherent in killing all of the fielded forces of a nation-state has led to the need to sequence battles in such a way as to defeat the enemy by convincing him he is beaten rather than by killing each of his soldiers. Operational art therefore involves the application of tactical forces to achieve a moral outcome – the submission of the enemy. The concept of operational shock describes the moral disintegration being sought and is the core of operational art.

SOURCES OF OPERATIONAL ART

The German school of military theorists that emerged around the beginning of the eighteenth century saw war as a "giant demonic force, a huge spiritual entity, surcharged with brutal energy." Working from this premise, they came to the realization that, to be understood and properly directed, war needed to be seen in the round. As Scharnhorst said; "one must habitually consider the whole of war before its components." From this foundation, Clausewitz posited the theory that war was made coherent only by its political aim and that all effort in war should therefore be directed towards the attainment of that aim.

¹ JP 5-00.1 Doctrine for Joint Operations, (Joint Chiefs of Staff, Washington DC), 2002, p.ii-1

² Rosinski, Herbert 'Scharnhorst to Schlieffen: The Rise and Declijne of German Military Thought' Naval War College Review, (US Naval War College, Newport RI), Summer 1976, p.85

³ ibid. p.103

To have a war there must be a countervailing political aim; an enemy. These two aims in competition make war a clash of wills. All actions in war, all plans and all effort must be directed against the opposing will. Every tactical action should therefore contribute directly to strategic ends. The way forces are organized to achieve this, into theaters, fronts or joint task forces for example, is irrelevant. Analysis of the problem and approaches to its solution need to view war as a single entity – this is unity of command writ large and suggests that analysis of war by levels is both wrong and, potentially, dangerous.

A discrete operational level of war cannot exist in theory. This contention accords with Clausewitz' understanding and is supported by the impossibility of the operational level having an independent existence – it needs both tactics and strategy. Strategies can be created without tactics and tactics need not be guided by strategy but operational art must have both to have meaning. Because it can have no independent existence it is necessarily reduced to a connecting function. Because it is only a function, operational art is not constrained to any particular level of command or size of force – every action, everywhere should be directed at strategic objectives.

Although it is possible to conduct discrete analyses of strategy and tactics to do so is dangerous. This is because "strategy only proposes while tactics disposes". Returning to Clausewitz for a moment, he notes that: "…it is useful to emphasis that all strategic planning rests on tactical success alone and that — whether the solution is arrived at in battle or not — this is in all cases the actual basis for decision." Therefore, although tactics should clearly serve strategy, strategic ambitions are necessarily subject to tactical possibilities, that is, the interplay of ends and means is a two-way conversation. Failure to reconcile strategic ambitions with tactical realities is a recipe for failure. ⁵ War does not lend itself to analysis by levels.

It was easy for Scharnhorst to caution us that we needed to view war as a whole. In his day armies in the field seldom exceeded 150,000 men and generally fought under the eye of their commander —who was quite often the National Command Authority. In this context the

⁴ Clausewitz, Carl von, On War, Ed and Trans by Howard. M and Paret. P, (Princeton University Press, Princeton NJ), 1976, p.386

⁵ The British plans for the defense of Singapore in 1941, for example, was based on a scheme of maneuver that called for actions by air, naval and ground forces that were simply inadequate for the task. Similarly, the Polish defence against German invasion in 1939 tried to hold all of western Poland with forces that were clearly inadequate. In both these cases all of the strategic ends could not be met by the means allocated. Failure to identify this deficiency was a failure of operational art.

interplay of tactics and strategy, or means and ends, was immediately visible and broadly comprehensible. From his time though, the impact of the French revolution and the *levee en masse* led to a rapid increase in the size of armies. Napoleon invaded Russia in 1812 with 600,000 men; the Prussians invaded France in 1870 with 1,200,000 and again in 1914 with 3,400,000. As a result of this increase, the size of the battlefield grew from a few miles wide under Scharnhorst to 500 miles during WWI. This meant that the means available grew faster than the ability of commanders to comprehend or control them. As a result, by WWI, the ends and means had become indistinguishable (provision of the means had become the ends of strategy) and war served itself instead of policy.⁶

The Schleiffen Plan of August and September 1914 provides a good illustration of the problem presented by wars between nations-in-arms. Essentially, the plan presented 51 German divisions marching into France in line abreast. It was an up-scale version of the linear battles of the Frederickan or Napoleonic eras (possibly leaning a little towards the former's oblique order). The key to victory was intended to be the ability of the Germans to continue to pour men and materiel into the resultant tactical battles at a rate that could not be matched by French mobilization. As it eventuated, the physical limitations of marching infantrymen, logistics, machine guns and artillery were, in combination, sufficient to cause the Germans to culminate before French resistance collapsed. Even a mobilized nation-in-arms could not produce sufficient mass to rapidly overwhelm another nation-in-arms.

Whichever side you fought on, you didn't need to be a Clausewitz to realize that WWI had not gone well. It had led directly to revolution in Russia and Germany, and very nearly in France. It had changed the social and demographic structures of Europe and it had irrecoverably drained the power of the British to sustain their empire. Despite the sacrifice of several million men, it was sufficiently indecisive to require completion in 1939-45.

As a result thoughtful soldiers everywhere set about the task of identifying why things had gone the way they had. Basically, it was realized that modern nations could not be disarmed and defeated in a single climactic battle such as Austerlitz, or Jena. Wars had evolved to "a grander scale [taking] the form of a series of consecutive and mutually related battles conducted

⁶ This point is explored in depth in Chapter 11 of Wallach, Jehuda. <u>The Dogma of the Battle of Annihilation</u>, (Greenwood Press, Westport Co), 1986.

⁷ It is interesting that the allied broad front advance across France in 1944 relied on the same concept of overwhelming the enemy with mass rather than with maneuver. As for the Germans twenty years earlier, the overreliance on mass led to allied culmination in September.

over a protracted period of time". Operational art was an attempt to answer the question of how to defeat the modern nation-in-arms: of how battles might be combined to achieve the submission of the enemy.

The German and Soviet Armies made a systematic study of the new conditions of war and some enthusiasts in the British Army, operating without official encouragement, made important contributions. Famously, the Germans produced what became known as blitzkrieg which was a tactical response to the technical conditions of WWI and which enabled the combination of tactical actions to enable large scale rapid maneuver. There was no attempt by the German army to doctrinally link blitzkrieg to the attainment of strategic objectives but the tactical excellence of the German Army, combined with careful and thorough education of its leaders, enabled the Germans consistently to demonstrate excellence in operational art.⁹

In parallel with the Germans the Soviet Army was dealing with similar issues but emerging with subtly different results. The Russians, with commendable thoroughness, attempted to establish direct doctrinal linkages between tactics and the attainment of strategic objectives. This had two results; for involving themselves in strategic issues the Russian theorists were purged by Stalin and executed but, of more lasting importance (at least to us) they produced the first, and still the most complete, conception of operational theory – which we know as deep operations theory. Reflecting the nature of the Soviet State and the impossibility of accepting substantial risk in pursuing its goals, the Soviet theorists attempted to codify the implementation of operational art. This necessarily constrained the creativity that commanders could apply to any particular problem and led to a heavy reliance on mass and attrition.

Despite these limitations, the completeness of Soviet deep operations theory means that it presents enough conceptual elements to provide the basis for an understanding of operational art and it has come to be accepted as the benchmark. However, the Soviet view of operational art reflects the strategic circumstances of the Soviet State and the limitations and strengths of

⁸ Simpkin, Richard Deep Battle, The Brainchild of Marshall M. N. Tukhachevskii, (Brassey's, London) 1987, p.18

⁹ Rosinski, op. cit. p.95 notes that the German Army's 'broad approach to warfare [amounting to] a preoccupation with strategy, amounting at times almost to an obsession, ... has been its characteristic feature' since Clausewitz. For a description of how German officers were prepared and educated see Corum, J.S. The Roots of Blitzkreig, Kansas University Press, Lawrence, Ka, 1992. For an excellent description of the reasoning behind the development of blitzkrieg see Lupfer, T.T. The Dynamics of Doctrine: The Changes in German Tactical Doctrine During the First World War, Leavenworth Papers No.4. (Combat Studies Institute, CGSC, Fort Leavenworth Ka). 1981.

the tactical capabilities provided by the state to the Army – efforts to transplant it in foreign soil need to be scrutinized carefully.

Although the Soviets made explicit each part of their conception and the linkages between, while the Germans relied to a much greater degree on the implicit knowledge of their officer corps – the two theories are closely connected. The purpose of both approaches was to translate abstract strategic ends into concrete tactical actions. Operational art is the art of applying mechanical tactical means to achieving abstract strategic ends.

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A digression into metaphor may help. In the case of a sculptor, the artist starts with an abstract idea: a conception of beauty or an emotion or a message. The artist then uses a hammer, chisel and a block of marble to give the abstraction a concrete form. So it is with operational art: the operational artist uses tactical actions and logistics to give concrete form to abstract strategic ambitions. The question the operational artist is required to answer takes the form, for example, of; "What sequence of tactical actions will cause X regime to collapse?" The study of history showed Clausewitz, and continues to show us, that war is able to assume radically different forms and that the way war manifests itself is determined by the interaction of the elements of the remarkable trinity, which he defined as:

- Primordial violence, hatred and enmity, that is, irrational forces;
- The play of chance and probability, that is, non-rational forces; and
- Subordination to policy that is, rational forces.¹²

Therefore, war is actually shaped by a mix of irrationality, non-rationality and rationality. It is therefore chaotic and is not amenable to scientific analysis – it requires constant adaptation to balance ends with means and possible costs with potential benefits. Given its underlying chaos it is therefore reasonable to treat operational art as "a system of expedients": a series of opportunistic responses by educated leaders to the objective situations that they encounter. In

¹⁰ This connection is acknowledged, with some reservations, in Savkin. V. E. <u>The Basic Principles of Operational Art and Tactics</u>, Moscow 1972. Trans and Published by USAF. p.50

¹¹ This statement stands without qualification. For reasons of convenience it may be decided to group tactical actions into major operations, campaigns or groups of campaigns within a theater. However it may be decided to bundle tactical actions for management, there are grave dangers in allowing discrete analysis. The ends-ways-means connection needs to be seen as a single, indivisible, entity.

¹² Clausewitz op. cit. p.89 and Villacres, E. J. and Bassford, C. 'Reclaiming the Remarkable Trinity', <u>Parameters</u>, (US Army War College, Carlisle, Pa), Autumn 1995, p.3

this model the preparation of the leaders is intended to enable them to make the appropriate adjustments while keeping the strategic aim firmly in mind.

However, the stakes are high, the costs of misadventure may be unrecoverable and the process is even more complex than it first appears. Because war involves interaction between two or more, essentially independent, Trinitarian entities and interaction with the enemy happens at three levels; strategic, operational and tactical, the task of comprehending the whole abstract reality is enormously difficult and the expression of appropriate concrete tactical responses only a little less so.¹³ As a result, some descriptive theory that helps prepare leaders for their role is desirable. The theory of operational art should not provide detailed guidance on what to do, but rather a number of tools to aid analysis of a situation with the response necessarily being left to the artist.

The role of the artist must be allowed to dominate. Naveh argues that "the prime requirement of operational command is creativity [which] implies the cognitive powers to deal with the complexities of abstract strategic aims and the ability to assemble a series of tactical actions into an abstract outcome" – which in nearly all situations will be the submission of the enemy.¹⁴

As a result of the above discussion it is possible to establish some criteria for "good" operational art. Good operational art would use innovation and creativity to apply force to:

- contribute directly to the attainment of strategic objectives or, at a lower level of accomplishment, set the conditions where their attainment is much more likely;
- maximize the strategic returns available from a given amount of tactical effort or, conversely, minimize the amount of tactical effort needed to attain a given strategic objective; and
- ensure that the natural tendency of tactical elements to focus on the fight does not draw them away from direct contribution to the attainment of strategic ends.

The next part of this essay will introduce some of the concepts that might underlie the creation of an operation that meets these aesthetic criteria.

¹³ Because of the action of the remarkable trinity, Clausewitz saw that war would naturally tend to escape rational control. Operational art needs to take cognizance of the trinities of both combatants in order to ensure the continued connection between rational ends and the application of means.

Naveh. Shimon. <u>In Pursuit of Military Excellence: The Evolution of Operational Theory</u>. (Frank Cass, Portland, Or), 1997. p.186

LIMITATIONS OF OPERATIONAL ART

Clausewitz wrote that "war is a free creative act resting on a clash of wills". The principal limitation of operational art is that it attempts to resolve this clash by disarming the opposing will, that is, its objective is the destruction of the ability of the enemy to fight. This can be achieved either by actually destroying the enemy's military capability or by persuading the enemy to submit because such a result seems inevitable. Therefore, operational art is necessarily force oriented – it deals with the destruction, or threatened destruction, of military capabilities. The links between those capabilities and the will of the enemy may or may not be strong. "Foreseeing the consequences prior to the act's materialization requires creative faculties." These creative faculties find expression in the selection of the aim of the operation, which is where the connection between the will of the enemy and our own tactical forces is articulated. However, in approaching operational art it has to be remembered that it is conjectural: the object of an operation does not necessarily flow from the attainment of its objective. The principal limitation of the operation of

OPERATIONAL SHOCK

Maneuver theory seeks ways to defeat an enemy without having to destroy all his forces. At the heart of maneuver theory is the desire to create a situation in which further combat by the enemy is so unlikely to yield victory that submission appears the only sensible option.

Operational shock is a Soviet term for this state of disintegration of resolve. It is the concept of operational shock that connects the thinking of a large group of theorists including Sun-Tsu, Clausewitz, Liddell-Hart, Fuller and the Germans and Soviets of the inter-war years.

Operational shock is a synonym for the effects that they all described as being the object of maneuver.

¹⁵ This invalidates the idea that operational art is strongly affected by whether a strategy of annihilation or erosion is being pursued. The role of operational art in both cases is to inflict costs on the enemy in a way, and with means that are consonant with the strategy.

¹⁶ Naveh. op.cit. p.19.

¹⁷ In broad, the desire is to impose costs on the enemy that outweigh the potential gains to be had by a continuation of the present course of action. Clearly this calculus is based on a complex set of cultural and moral issues which may not be fully accessible to the operational commander. It also engages the enemy's remarkable trinity which will further obfuscate the connection between action and outcome.

Understanding operational shock may be aided by a short excursion into systems theory. Briefly a system is a group of interacting parts functioning as a whole and having recognizable boundaries. Systems having a lot of parts are called complex systems. Complex systems in which the interaction of the parts is inconsistent - that is, in which the cause and effect of interaction is not entirely predictable – are said to have dynamic complexity. Armies are highly dynamically complex systems. Clausewitz perhaps made this point more simply when he described the affect on military operations of the interplay of chance, uncertainty and friction.

A military operational system comprises its mission, its forces and the geographic space it influences.¹⁹ An operation can be characterized as a duel between two dynamically complex systems in which, generally, sense data is transmitted upwards and purpose and control are transmitted downward.²⁰ If the rival system can be sufficiently disrupted to prevent these flows it will be rendered incapable of functioning as a system. This condition may be called operational shock.

Operational shock results from depriving the operational commander of the ability to sense some or all of his environment or to exercise control over his tactical elements or both. The result is the inability of the enemy system to achieve its own objectives or to mount an effective response to our actions. This sets the conditions for the piecemeal destruction, or surrender, of enemy tactical elements acting without central coordination or convinces the enemy that further resistance is pointless. Either way, it disarms the will of the enemy.

The operational system can now be understood as a framework that connects an abstract purpose with mechanical tactical elements. Operational shock aims to deprive this system of

¹⁸ The following discussion of systems theory is taken from: Adams, T. K. 'The Real Military Revolution', <u>Parameters.</u> (US Army War College, Carlisle, Pa), Autumn 2000, p.3

¹⁹ Soviet doctrine laid down three elements of the military operational system: mission, geographic space and "warfare" with the last including both military technical and military strategic components. This expresses more completely the complex interaction between the remarkable trinities of the combatants. To avoid excessively clumsy expression I have settled on "Forces" but it should be noted that this is intended to have a much broader meaning'.

²⁰ A more highly evolved system is an adaptive system which: spontaneously self organizes, learns and anticipates and displays the ability to exist at the balance point between rigidity and chaos. Interestingly, this describes a military organization in which the full benefits of mission command are realized.

the ability to achieve its purpose. Operational shock enables us to move away from the need to attempt to destroy all of the enemy's fielded forces and is therefore the core of operational art. It answers the question of how the nation in arms might be militarily defeated and is therefore the very essence of operational art.

Because it describes how a nation in arms may be defeated, **the creation of operational shock is the organizing idea behind operational design.** From this basis it becomes easier to understand the relevance and interconnections of some of the other elements of operational design. The most important of these are discussed below.

Centers of Gravity.

Doctrinally, the enemy's center of gravity is the source from which a military force derives its freedom of action, physical strength, or will to fight.²¹ This is not very helpful and tends to generate tortuous discussion rather than add clarity. A simpler approach is to link the idea of a center of gravity with the operational purpose of the enemy. That is, the center of gravity is that component of the operational structure of the enemy that enables the enemy plan to work.²² This means that the center of gravity may change as the enemy responds to our own actions and to the development of the operational situation. The idea of a constantly evolving center of gravity is harder to plan for but more completely expresses the dialectic of combat. It also explains the importance of a number of corollary concepts: including simultaneity, operational tempo and operational activity.²³

Simultaneity.

²¹ The concept of a center of gravity is taken from Chapter 4 of Book 8 of 'On War'. In his discussion, Clausewitz refers only to strategic centers of gravity. It is possible that in applying the concept to the operational and tactical levels we are stretching the original conception beyond a reasonable limit.

²² On this basis, the Center of Gravity could be a specific military capability, a terrain feature or the ability to control the system – or, at different times, any or all of these.

²³ According to Naveh, centers of gravity do not appear explicitly in soviet operational theory. (Naveh, op. cit. p.19) Soviet theory does however place a great emphasis on depth with a view to placing large maneuver forces behind the enemy's operational layout – that is – behind the enemy's center of mass in order to cause the enemy to fight reversed. Equating the center of gravity with the center of mass and then dislocating the center of mass by deep penetrations is a viable approach if the attacking force has sufficient mass and can maintain adequate operational momentum. The lack of a Soviet conception of center of gravity reduces the options for finesse and calls for a more massive and tactically attritional approach – but at the same time it reduces the operational and strategic risks attendant on being wrong.

If the enemy center of gravity is going to change, probably unpredictably, in response to our own actions, we are left with the challenge of identifying an appropriate focus for the application of our own capabilities. The prospect of substantive changes in the enemy center of gravity can be minimized if operational shock is imposed early. The simultaneous engagement of the entire operational depth and breadth of the enemy system may achieve this by committing each of its military components to individual combat – thereby over-stressing its ability to comprehend or respond and laying it open to defeat in detail. Simultaneity requires joint strikes to separate selected layers of the enemy hierarchy and to laterally fragment the enemy front thereby denying the opportunity for effective responses.²⁴

Tempo and Momentum.

Tempo is the time taken to move from a start point to an objective. All military effects are transient. Moving quickly to exploit effects while they remain in place is fundamental to our understanding of the interaction of fire and maneuver. As the scale of maneuver increases, the number of interactions between operational systems also increases. As a result the concept of velocity is supplanted by that of momentum. Momentum refers to the mix of mass and velocity. High-velocity, low-mass forces (e.g. airborne forces) are generally unable to sustain tempo because of the effects of friction and vulnerability to enemy action. High-mass, low-velocity forces (e.g. WWI infantry armies) are generally unable to sustain tempo because although they are more able to overcome enemy resistance, they give the enemy time to muster additional resistance. Momentum implies the mixing of forces, and the provision of successive echelons, to maintain tempo sufficient to invalidate enemy responses. Momentum enables the maintenance of tempo in order to exploit the effects of simultaneity. At the core of the maintenance of momentum are:

Interchangeability. Napoleon frequently demonstrated that there was a degree of
"interchangeability between shell and bayonet" or between fire and maneuver.

That is, a deficiency in the size of a maneuver force may be partially offset by an
increase in the effectiveness of the fires with which it is supported. The recent
foray into Afghanistan provides a good example of the action of this mechanism.

Application of the concept of interchangeability can enable the maintenance of
momentum by imposing surprise or by removing critical logistic constraints as well
as by killing a lot of the enemy. Interchangeability is only feasible within a set of
parameters. All fire - no maneuver creates a WWII bomber offensive or a

²⁴ ibid. p. 17

LINEBACKER approach that is costly in resources and time and may ultimately be pointless while all maneuver – no fire simply accepts the certainty of heavy casualties. The actual parameters that will impose themselves on interchangeability are determined by the nature of the opposing operational systems (mission, forces and battlespace).

- Combined Arms. Closely related to the concept of interchangeability is that of combined arms. Combined arms thinking attempts to combine firepower, survivability and mobility in order to:
 - Create vulnerabilities in an enemy that can be exploited; and
 - Cover the vulnerabilities of certain components of the force with the strengths of another.

Operational art attempts to take the combination of arms up to the next level in which characteristics like effects, range and duration of action are applied appropriately throughout geographic space and time in order to impose operational shock.

Operational Activity.

The enemy operational system will attempt to respond to our own actions to both protect itself and attempt to seize the initiative. If operational shock has been imposed, respite granted to the enemy enables a measure of recovery. For these reasons the notion of an "operational pause" is absurd. The maxim "if you are not going forward you are going backwards" is apt. A good example of the impact of an operational pause is that flowing from the poor operational design of the allied advance across France in 1944. The logistic inability to support the overemphasis on mass of the broad front advance with the consequent failure to maintain operational activity led directly to the Battle of the Bulge, Aachen and the Huertgen Forest. Over two-thirds of Allied casualties in the NW Europe campaign were incurred after the operational pause in September of 1944.²⁵ This failure can be contrasted with the Japanese success in Malaya in 1940. They used a combined arms approach and interchangeability to balance the size of the maneuver force with logistic capacity. As a result they were, narrowly, able to maintain operational activity for the duration of the campaign thereby denying the British

²⁵ Essame. H. <u>Patton the Commander</u>, (Batsford, London), 1974, Chapter 13 pp189-202 contains a succinct discussion of the broad-narrow front debate.

any chance to recover to apply their superior numbers or logistic situation in order to regain the initiative.²⁶

Depth.

Even in the era of non-linear tactics armies will still have rears so depth will remain important. Ultimately, resources and control flow forward from the rear and armies face their fronts. Attacks at the depth of the enemy's operational layout have a paralyzing affect and are profoundly threatening in themselves. The effect of this threat increases exponentially with the size of the force and the velocity with which it moves. It is unlikely that any army is able to turn to its rear and fight to re-establish its lines of communication. Deep operations represent a direct attack on the equanimity of the enemy and will therefore be at the core of any good operational maneuver. Attacks into depth need not be aimed at encirclement but, in the absence of more psychologically compelling objectives, they may need to be. The latter had been used by the Germans in the constricted Western Theater in 1940 while the former option was chosen by them in Russia in 1941 and 1942.

OPERATIONAL DESIGN

The preceding discussion of operational art can be summarized and further enlarged by outlining a sequence for operational design based on the following steps:²⁷

- Identify the Aim
- Create an Operational Vulnerability
- Hide the Vulnerability from the Enemy; and then
- Ram maneuver forces into the vulnerability.

Identify the Aim

The identification of the aim has already been discussed in some detail and is extensively covered in extant doctrine. The key points, worthy of reiteration, are that the challenges are:

- to identify what tactical actions will achieve the desired strategic outcomes; and
- the absolute need to achieve operational shock.

Failure to correctly identify the consequences of each facet of the operation at the strategic levels in both our own and the enemy capitals risks invalidating all actions taken subsequently. Failure to achieve operational shock accepts the likelihood of achieving a

²⁶ Admittedly, this was a close run thing. Japanese culmination occurred simultaneously with British submission.

²⁷ Naveh, S. op.cit. p.214 lists these steps.

decision only through mutual attrition which will itself directly influence the strategic calculus. The operational commander expresses the aim of the operation as a series of theater strategic objectives together with a concept that connects them.²⁸ Selecting the aim is a process that is best described with words like "creative", "intuitive", "artistic" and "genius". It is therefore in territory that most soldiers regard as foreign - this presents the last and greatest challenge to selecting the aim for an operation.

Create an Operational Vulnerability.

A perceived enemy weakness is only useful if we can exploit it. This means creating an operational vulnerability has two aspects:

- The identification of a possible relative enemy weakness; and
- The development of our own ability to exploit it.

It would be unusual to encounter an enemy with an absolute weakness – a completely undefended part of the front or a key capability that is entirely exposed. In most cases weakness is relative, a portion of the front is less well defended than some other portion or some key capability is exposed to some forms of attack. It is the sum of these relative tactical weaknesses and strengths that will shape the subsequent scheme of maneuver.

Operationally our strength is measured by our ability to impose operational shock - and then exploit that shock to impose our will on the enemy. This demands a balance between tactics and logistics in order to achieve simultaneity, maintain momentum and maintain operational activity and will influence the selection of those weaknesses we will exploit as vulnerabilities.

Our actions will be directed at the enemy Center of Gravity because defeat of that will defeat the enemy's plan and thereby impose the systemic shock we are seeking.²⁹ If the enemy Center of Gravity is weak with respect to our means of attack, for example the Iraqi Republican Guard in 1991, it can be attacked directly and disrupted (noting that the direction of our own main effort at an enemy center of gravity that is similar in conformation is an acceptance of an attrition-based defeat mechanism). Alternatively, if the enemy Center of Gravity is strong with respect to our means of attack it may need to be attacked indirectly to dislocate it. Dislocation can be achieved:

²⁸ ibid. p.14

²⁹ It should be noted that "defeat" is different from "destroy". Denying the enemy the opportunity to use his center of gravity - that is, to apply his strength - may represent the "acme of skill".

- geographically by an operational turning maneuver forcing the enemy to fight reversed for example;
- functionally by conducting a maneuver to which the enemy strength is poorly functionally adapted, such as some North Vietnamese operations south of the DMZ 1964-75,
- temporally by pre-emption (e.g. Pearl Harbor 1941, 1967 Arab-Israeli War) or attacks on the enemy's decision making to deny him the opportunity to employ the Center of Gravity in a timely way; or
- morally by precluding the enemy from applying his Center of Gravity because of the
 perceived impact of domestic or international reaction this restraint may be imposed
 by inaction as much as by action.

Lines of operation.

As the scale and ambitions of maneuver increase it becomes important to think in terms of lines rather than points. Operations may be geographically expansive and success at any point may not, of itself, be of much importance. Rather it is a succession of successes along a chosen line or lines that creates the fragmentation and collapse being sought. Guderian's advance from Sedan to Dunkirk in 1940 illustrates this point. Success at Sedan was not decisive, nor was defeat at Arras, rather it was the sum of wins and losses along the chosen line that created military strategic success: the separation of the British and French Armies together with the operational turning of the British and their subsequent retreat.³⁰ It should be noted that this plan called for the striking of a tactical strength (Sedan) to gain access to an operational vulnerability (the seam between the stationary and moving parts of the Anglo-French operational system) which enabled the imposition of operational shock on the enemy. It should also be noted that this was not a battle of encirclement (the *kesselschlact* that emerged in response to the vastness of Russia) but rather one of raw penetration. Penetration into the operational depth of the enemy is the most complete expression of the clash of wills that underlies combat in that it threatens attrition rather than does attrition. In this context defeat

³⁰ That the halt order before Dunkirk prevented the maneuver force from destroying the British Army reflects the impact on operational art of strategic control. It does not invalidate the artistry demonstrated by the Wermacht during this campaign..

becomes the state of mind that we are calling operational shock.³¹ The selection of those relative enemy weaknesses that will be developed into vulnerabilities should itself be based on the selection of a line of operation that seems most likely to meet the aim of the operation. They will therefore reflect not just enemy vulnerabilities but enemy perceptions of danger.

Hide the Vulnerability from the Enemy.

The competition between the two contending operational systems will lead to constant mutual adjustments to cover weakness or exploit strength. Clearly planning and preparation can be invalidated if weaknesses disappear before they can be exploited. As well as being a strong argument for high rates of operational activity, this creates the demand to hide his vulnerabilities from the enemy.³²

At Kursk in 1943, the Soviets were aware of the impending German *Zitadelle* offensive and created a vulnerability firstly by establishing a deeply echelonned defense with massive artillery support and a Front earmarked for a counter offensive. These preparations were hidden from the Germans by concealment and deception (*maskirovka*). As a result the Germans expended their strength attempting to penetrate the impenetrable and then were subjected to a counter-offensive by an army group of which they were unaware. Failure to hide Soviet preparations from the Germans would probably have led to the cancellation of *Zitadelle* thereby significantly lengthened the war on the Eastern Front.

Another good example of this mechanism is Operation Fortitude; the deception measures taken to protect the amphibious landings at Normandy in 1944 (Operation Neptune). Having assessed that the balance of German strength and allied capabilities made the Normandy beaches a German vulnerability, Operation Fortitude was mounted to hide the vulnerability from the Germans by convincing them that their real vulnerability lay elsewhere. This involved both concealment of preparations for Normandy and deception measures to strengthen existing German convictions. The result was that the landings exploited a vulnerability that remained un-addressed for the critical phases of the operation. Effective German responses to Neptune would probably not have altered the eventual outcome of Overlord but would likely have increased the time and casualties needed to achieve its objectives.

³¹ In 1944, Brussels was liberated from more numerous and less functionally dislocated German troops by a single tank battalion of the Irish Guards that marched in column to the city square. Defeat and victory were, in this case, purely states of mind.

³² The Napoleonic idea of maneuvering behind an "operational curtain", as exemplified by Lee's advance to Gettysburg shielded by the South Mountains, is an early articulation of this concept.

Maintaining a plan that Napoleon might describe as having many branches further supports the concealment of enemy vulnerabilities. For example, returning to 1944, the Allies' ability to lodge anywhere along the European coast prevented the Germans from concentrating their resources in one or two areas. Once the lodgment in Normandy had taken place, the German response was still constrained by perceived threats to other areas. This idea of at least appearing to have a range of options is important in maintaining the initiative and relative freedom of action.

Ram maneuver forces into the vulnerability

It is interesting that Naveh uses the non-doctrinal word "ram" to describe the operations of maneuver forces exploiting the vulnerability that has earlier been created and protected. ³³ This is possibly because it more clearly expresses the intent and actuality than some alternatives like "launch" or "insert". It is in this stage that tactical organizations will be committed to combat across the front and through the depth of the enemy's operational layout. Not all of these actions will meet with success and to some extent, the hard work remains to be done. "Ram" is a pretty good description.

A range of strikes will be employed to support the achievement of operational shock. These include:

- Fragmenting strikes that aim to destroy the mechanisms providing cohesion,
 particularly between the layers in the enemy hierarchy. Possible targets include command and control nodes or mobile forces and reserves,
- Fixing Strikes that prevent forces from across the enemy front from cooperating to redress vulnerabilities. Actions such as demonstrations and holding attacks or attacks with limited objectives can be used to fix important elements of the enemy frontal forces; and
- Dividing Strikes that seek to isolate selected enemy organizations to enable their defeat in detail.

It is easy to say that operational shock will result from the simultaneous engagement of the enemy's entire operational depth and breadth by a combined arms group incorporating operational fires (including cyber-strikes), vertical envelopment and ground maneuver to disrupt the flow of information and control through the hierarchy, destroy critical capabilities and deny effective enemy responses - but clearly there are a lot of things to fight and we are unlikely to

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³³ Naveh, op.cit. p.214

have sufficient resources to do everything we might wish. There will therefore be a need to build a main effort.

If the main effort is to maintain momentum and operational activity along the chosen line of operation into the enemy's operational depth, it must be appropriately weighted and therefore it must have first call on all the resources of the operational commander. Acceptance of substantial weakness elsewhere is sensible if the main effort has sufficient weight to seize and retain the initiative. Even modest relative weakness elsewhere, however, may be fatal if the main effort is unable to retain the initiative and an enemy response eventuates. The Battle of the Bulge (1944/45) being an example of the results of the failure to create a viable main effort. Providing sufficient weight to the main effort is an imperative that cannot be sufficiently emphasized.

CONCLUSION

The idea of operational art was a response to the increasing scale and complexity of war. It is an historically based set of assumptions and presumptions that seem to make sense today: just as the cult of the offensive seemed to make sense to the French Army of 1900 and the Schlieffen Plan seemed to make sense to Germans of the same era. Like all military theory we should treat it with respectful caution approaching each situation with perfect objectivity and openness of mind. There is no role for zealots in the planning of wars.

The principal role of operational art is to reinforce the unity of the war by establishing the strongest possible connection between strategic ends and tactical actions. Good operational art therefore rests on understanding war as a whole and not as a hierarchy of headquarters with cascading responsibilities. War needs to be seen and fought in the round. This is the only way that war can truly become an extension of politics and not take on a life of its own.

Operational art attempts to use physical means (combat) to achieve psychological ends – the submission of the enemy. It is therefore mostly subjective and there are – beyond the laws of physics, no absolutes. It is almost entirely a realm for the interplay of intellectual, moral and cultural factors. There are more imponderables than facts and, despite the presumptions of the Russians – there is only a very minor role for prescriptive theory. Operational art is truly an art.

The basis of operational art is tactical excellence. Even the most elegant design only has meaning if it can be properly executed. In the chaos resulting from the chance, uncertainty and friction of war, tactical excellence provides the bedrock from which ambitions may be projected into the future. The weakness of the Soviet Theory is that, in the absence of tactical excellence it replaced uncertainty with ersatz- predictability by accepting the certainty of massive

casualties. The Soviet Theory displays operational cognition but leaves little room for art. The WWII German absence of theory displays great art resting on a foundation of tactical excellence.

Operational art was founded on the realization that modern states could not be defeated by attrition. Operational shock is a term that best encompasses the alternative and, although it is taken from the Russian *udar*, equally reflects the writings of theorists from Vegetius to Liddell-Hart. In designing campaigns, how operational shock may be imposed, sustained and exploited provides an important cognitive tool for connecting abstract strategies with concrete combats.

As long as war involves a competition between humans it will primarily employ moral levers and therefore operational art seems likely to retain its relevance. Technology has an effect only at the tactical level and therefore cannot affect operational art whose only function is to connect technological combat with abstract desires. Whatever tactical assets there are to employ still need to be given meaning by the artist. The study of operational art therefore seems likely to remain at the core of the education of military leaders into the future.

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